

MONTGOMERY COUNTY
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION
DIVISION OF OPERATIONS

November 2003

ROADWAY, ROUND, TAPERED,
SPUN ALUMINUM STREETLIGHT POLES

1) DESCRIPTION

The roadway, round, spun aluminum, tapered streetlight poles shall be made of seamless, spun aluminum, tapered shaft. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these Specifications and the attached drawings. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these Specifications and the attached drawings.

Each pole shall be complete with the following:

- a) Base plate covers with attaching hardware;
- b) Pole top cover with attaching hardware;
- c) Handhole and cover plate (as specified);
- d) Anchor bolts (as specified);
- e) Typical footing design specifications including, but not limited to, base template, anchor bolt dimensions, reinforcement and footing details;
- f) Finish as per specifications entitled "Finishing Galvanized Steel and Aluminum Metals."

2) DESIGN CRITERIA

2.1) AASHTO Standards

The pole shall meet the requirements of the American Association of State Highway and Transportation Officials (AASHTO) "Standard Specifications for Structural Supports for Highway Signs, Luminaire, and Traffic Signals," latest edition.

2.2) Wind Load

The poles shall be designed to resist (at yield strength of the material without permanent deflection or destruction) test loads equivalent to the calculated wind loads developed by the velocity pressures of an 80 MPH wind with a 30% gust factor. A minimum safety factor of 1.82 on the yield strength shall be maintained.

2.3) Effective Projected Area (EPA)

The poles shall have an EPA allowable for the following assumptions:

- a) Streetlight luminaire shall be assumed to be near rectangular in shape, minimum length plus height of less than 34 inches.
- b) The streetlight luminaire shall be mounted at a height of 25 +/- feet above the base.
- c) One or two (24" x 36") traffic signs may be mounted with the sign's bottom edge 7 feet above the base.

3) MATERIALS

3.1) Shaft & Bracket Arm

- a) The tapered aluminum shaft and bracket arm shall be fabricated from tubing conforming to aluminum alloy 6063 and aged to the T6 temper.
- b) The bracket mounting plate attachment shall be of a continuous weld design so that it can transfer the full strength of the shaft. The attachment plate shall have a minimum of a two (2) bolt securing system.

3.2) Base Plate

- a) The pole base shall be cast aluminum, alloy 356 or 6061 plate, and shall be attached to the tapered shaft with a continuous circumferential weld.
- b) Each pole shall include four (4) cast aluminum bolt covers and four (4) stainless steel, self tapping, hex head screws, to secure the bolt covers to pre-drilled holes in the base plate.

- c) The base plate shall have a 10 ½ inch bolt circle pattern and the bolt hole slot shall be a minimum of a 1.25 inch x 1.75 inch slot.

3.3) Anchor Bolts

- a) The anchor bolts shall have a 55,000 PSI minimum yield strength. Two (2) hex nuts and four (4) washers shall be included for each anchor bolt to allow for leveling.
- b) The anchor bolts shall have a diameter of one (1) inch. The anchor bolt shall be a minimum length of thirty-six (36) inches with a four (4) inch “L” bend at the bottom. The top eight (8) inches of the anchor bolt shall be hot-dipped galvanized and a minimum of six (6) inches of the bolt shall be threaded.

4) FINISH

The spun aluminum, tapered streetlight pole shall have a sanded natural aluminum “satin” ground finish, or as specified.

5) ANCHOR BOLTS AND BOLT CIRCLE PATTERN

- a) The aluminum streetlight pole shall have four (4), 1 1/4 inches x 1 3/4 inches slotted holes.
- b) The spun aluminum, tapered streetlight pole shall have a 10 ½ inch bolt circle and anchor bolts shall not project more than three (3) inches from the top of the footer.

6) POLE

The spun aluminum, tapered streetlight pole shall have a round, circular, cross-section with an outside base diameter of seven (7) inches, and with a uniform taper decreasing from the base at a rate of 0.1 inch (minimum) to 0.14 inch (maximum) inches per foot of height.

7) HANDHOLE

The spun aluminum, tapered streetlight pole shall include:

- a) One (1) peripherally reinforced flush covered handhole
- b) The handhole shall be located a maximum of 18 inches above the base plate.
- c) The handhole shall be located at a 90 degree clockwise angle with respect to the luminaire bracket arm.
- d) The handhole shall be a minimum of 3 inches x 5 inches oval.

8) BRACKET MOUNTING ARM

The spun aluminum, tapered streetlight pole shall include one (1) six (6) foot tapered arm with attachment plate. The bracket arm fabricated from 6063 alloy aluminum and aged to the T6 temper. The bracket arm shall have a 1 ½ or 2 inches slipfitter at the end for the installation of the luminaire.

9) POLE TOP CAP

The spun aluminum, tapered streetlight pole shall include a removable pole cap, with a minimum of three (3) set screws, to allow the pole cap to be removed for servicing and maintenance.

